

APPENDIX

Patent Application For: SINGLE-POLY 2-TRANSISTOR BASED FUSE ELEMENT
 Inventor: Chandrasekharan Kothandaraman, et al.
 Reference No. 2002 P 03440 US
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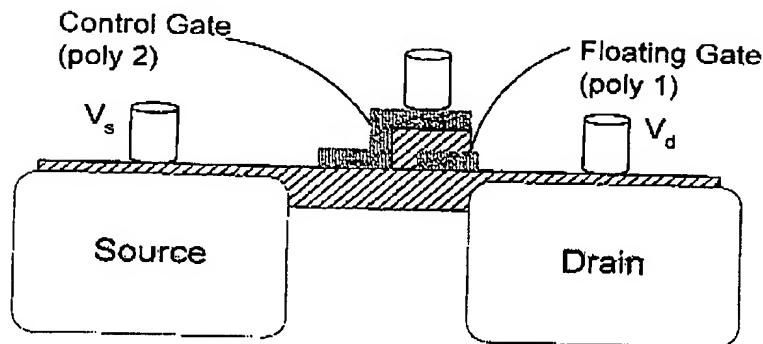


Figure 1



Figure 1A

Figure 1B

SG EE	Erase	Program	Read
SG Wordline (WL)	-17 V (-12 V)	Vt	Vref
Bitline (BL)	Vss (5V)	12 V	Vdd
Source Line (SR)	Vss	Vss	Vss

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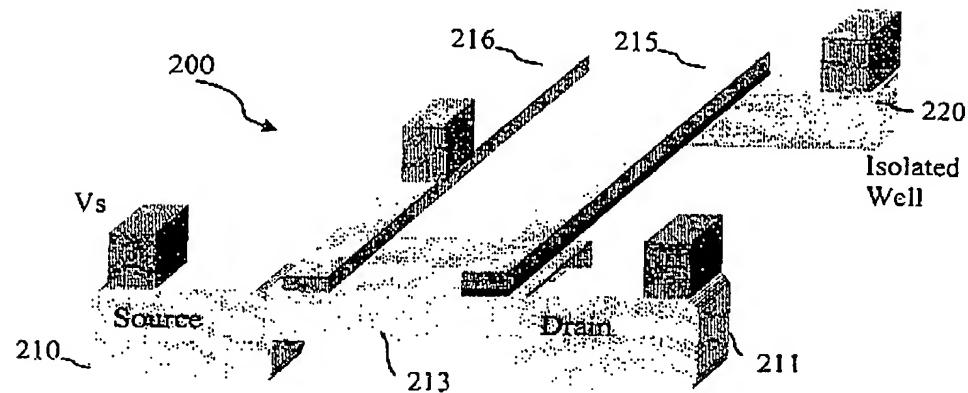


Figure 2A

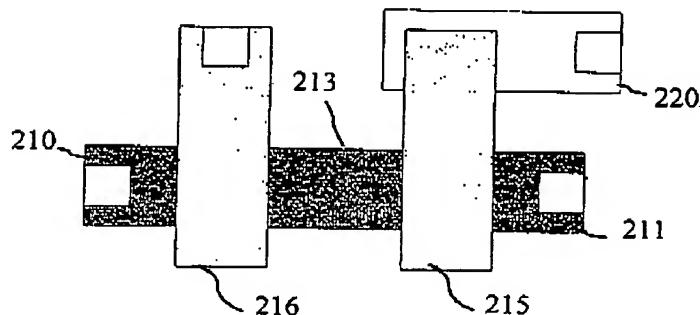


Figure 2B

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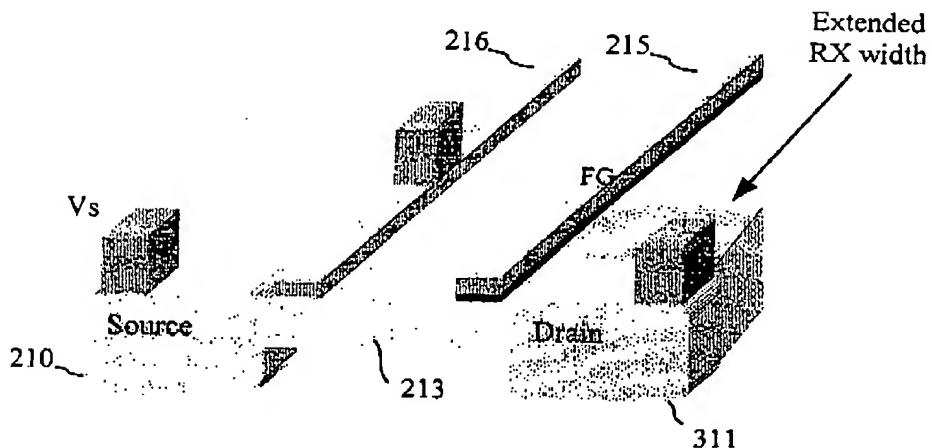


Figure 3A

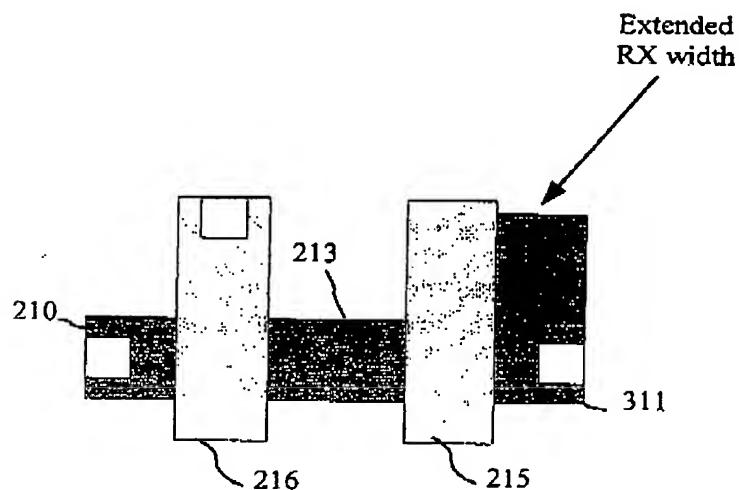


Figure 3B

Patent Application For: SINGLE-POLY 2-TRANSISTOR BASED FUSE ELEMENT

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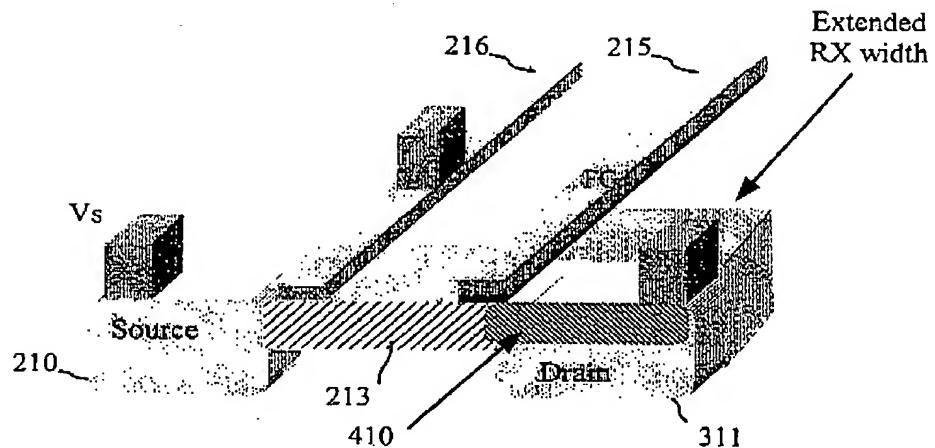
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Figure 4A

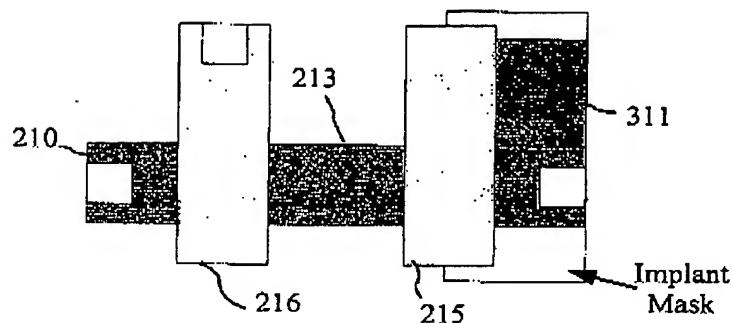


Figure 4B

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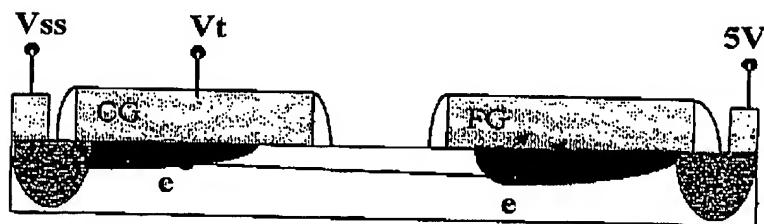
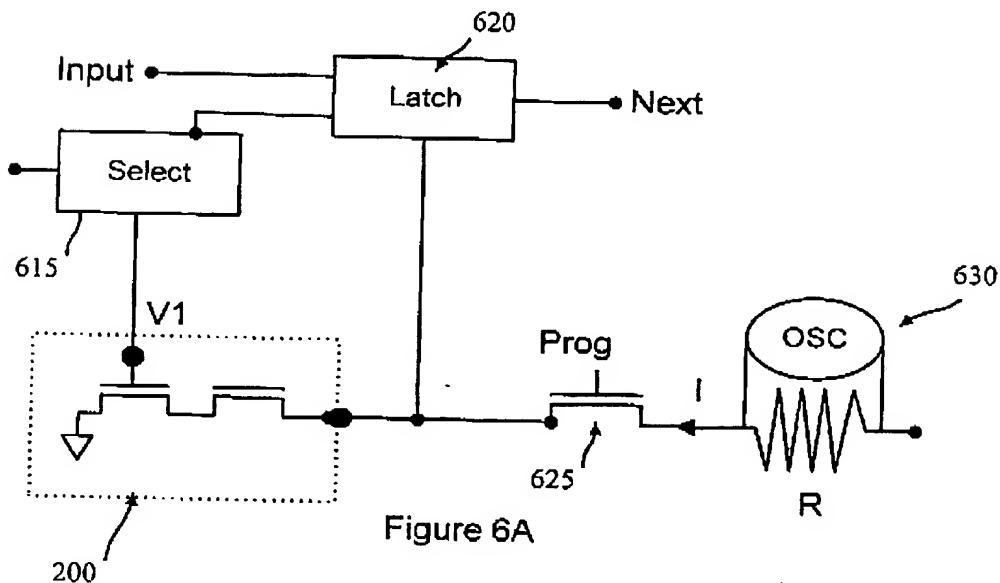


Figure 5A

NVM Fuse	Erase	Program	Read
Selected Wordline	-5 V	Vt	Vref
(BL) (+ iso-well)	5 V	5 V	Vdd
Source	Vss	Vss	Vss

Figure 5B

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NVM fuse	Erase	Program	Read
Select (WL)	-5 V	V_t	V_{ref}
Latch BL (Prog FET)	5 V	5 V (on)	V_{dd} (off)
Source	V_{ss}	V_{ss}	V_{ss}

Figure 6B